United States District Court
Northern District of California

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

MEDIATEK INC.,	Case No.: 11-CV-5341 YGR
Plaintiff,	**CLAIM CONSTRUCTION ORDER**
vs.	
FREESCALE SEMICONDUCTOR, INC.,	
Defendant.	

Plaintiff MediaTek, Inc. ("MediaTek") alleges it designs integrated circuit devices for many applications, including wireless communications, digital multimedia solutions, chip integration solutions for digital television and DVD players, wireless home networking, and broadband access solutions. MediaTek alleges that Defendant Freescale Semiconductor, Inc. ("Freescale") has implemented MediaTek's proprietary solutions relating to processor and/or microcontroller technologies as to which it is the patent holder.

On November 7, 2012, the parties provided a technology tutorial and on November 28, 2012, the Court held a claim construction hearing. The parties have requested the Court to construe four claim terms/phrases[1] from three patents:

1. "configured and arranged to operate independently" ('845 Patent, claims 1, 2, 5)

2. "independently accessed" ('845 Patent, claims 21, 22, 25)

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[1] At the hearing, the parties agreed on the construction of the term "determine" as used in the '331 patent claims and that, based on that construction, the Court need not construe the term "determine a voltage requirement based on a clock frequency requirement." The parties submitted a proposed order to that effect, which was entered by the Court on December 21, 2012. This resolved all claims to be construed with respect to the '331 patent.

3. "interconnecting" ('753 patent, claim 2)

4. "predetermined parameters" ('244 patent, claims 2, 3)

Based upon the papers submitted, the arguments of counsel, and for the reasons stated below, the Court construes the claims as follows:

DISPUTED CLAIM TERM/PHRASE	CONSTRUCTION
"configured and arranged to operate independently"	*"configured and arranged to operate without regard to the other arbitration unit"*
"independently accessed"	*"accessed without regard to the other slave subsystem"*
"interconnecting"	None; original language does not require construction.
"predetermined parameters"	*"two or more variables each with a specific value set before a determination regarding use of the bus."*

BACKGROUND

The patents-in-suit concern systems for interconnection of signal paths within computing devices. The patents each describe a system architecture which will allow manufacturers to establish efficient communication pathways (*i.e.*, buses)[2] connecting the functional units of a circuit, device or system, and allowing data transfer between the functional units. The patents also concern methods of prioritizing and granting bus access (*i.e.* bus arbitration), for example, to maximize efficient use of computing device resources.

PRINCIPLES OF CLAIM CONSTRUCTION

Claim construction is a matter of law, to be decided by the Court. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 387 (1996) (determination of infringement is a two-step analysis: First, the Court determines the scope and meaning of the claims; second, the properly construed

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[2] The Court notes that the patents at issue use "buses" and "busses" interchangeably as the plural for the word "bus." As both spellings appear to be acceptable, but "buses" the more common spelling, the Court uses "buses," unless directly quoting a passage that uses the alternate spelling.

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1   claims are compared to the accused device.). "[T]he role of a district court in construing claims is …

2   to give meaning to the limitations actually contained in the claims, informed by the written

3   description, the prosecution history if in evidence, and any relevant extrinsic evidence." *American*

4   *Piledriving Equipment, Inc. v. Geoquip, Inc.*, 637 F.3d 1324, 1331 (Fed. Cir. 2011). "Claim

5   construction is a matter of resolution of disputed meanings and technical scope, to clarify and when

6   necessary to explain what the patentee covered by the claims, for use in the determination of

7   infringement." *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997). Thus,

8   claim terms need only be construed "to the extent necessary to resolve the controversy." *Wellman,*

9   *Inc. v. Eastman Chemical Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (citing *Vivid Technologies, Inc.*

10   *v. American Science & Engineering, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).[3]

11   The starting point in a claims construction analysis is the language of the claims themselves.

12   The claim language defines the invention that the patentee may exclude others from practicing.

13   *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005). A court must construe a claim

14   term in a manner consistent with its "ordinary and customary meaning," which is "the meaning that

15   the term would have to a person of ordinary skill in the art in question at the time of the invention."

16   *Id.* at 1312.

17   Claims must be read in view of the specification, of which they are a part and in a manner

18   consistent with the patent's specification. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967,

19   979 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996). The specification may act as a sort of dictionary,

20   explaining the invention and defining terms used in the claims. *Id.* A court also should consider the

21   patent's prosecution history, if it is in evidence. *Id.* at 980. The prosecution history may "inform the

22   meaning of the claim language by demonstrating how the inventor understood the invention and

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23   [3] Once the meaning of a term used in a claim has been determined, the same meaning

24   applies to that term for all claims in which the same term appears. *Inverness Med. Switzerland
     GmbH v. Princeton Biomeditech Corp.*, 309 F.3d 1365, 1371 (Fed. Cir. 2002). After a term is

25   construed, the Court's construction becomes the legally operative meaning of the disputed terms
     that governs further proceedings in the case. *See Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1377

26   (Fed. Cir. 2005). However, "district courts may engage in a rolling claim construction, in which the

27   court revisits and alters its interpretation of the claim terms as its understanding of the technology
     evolves." *Pressure Products Medical Supplies, Inc. v. Greatbatch Ltd.*, 599 F.3d 1308, 1316 (Fed.

28   Cir. 2010).

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1   whether the inventor limited the invention in the course of prosecution, making the claim scope

2   narrower than it would otherwise be." *Phillips*, 415 F.3d at 1317 (citing *Vitronics Corp. v.*

3   *Conceptronic, Inc.*, 90 F.3d 1576, 1582-83 (Fed. Cir. 1996)); *see also Chimie*, 402 F.3d at 1384

4   (prosecution history aids claim construction in that any interpretation that was disclaimed during

5   prosecution should be excluded). When the intrinsic evidence alone does not resolve the meaning of

6   the claim term, a court may consider, in its discretion, extrinsic evidence such as expert testimony

7   and materials outside the patent and its history if such sources will aid the Court in determining "the

8   true meaning of language used in the patent claims." *Phillips*, *supra*, 415 F.3d at 1318; *Vitronics*

9   *Corp.*, 90 F.3d at 1584 n.6.[4]

DISCUSSION

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11   **I.   THE '845 PATENT AND DISPUTED TERMS**

12   **A.   BACKGROUND**

13   Issued in 2004, the '845 Patent, titled "Bus Architecture and Shared Bus Arbitration Method

14   for a Communication Device," addresses a computing system with a "multiple bus architecture"

15   which includes multiple processors and one or more shared peripherals, such as memory. ('845

16   Patent, Abstract.) A "bus" is a "set of signal paths connecting the functional units of [a] circuit,

17   system or device." ('845 Patent, Col. 4:23-25.) Multiple components of the circuit, system or device

18   may share the same bus. Bus arbitration is a method by which that sharing is determined.

19   The '845 Patent is directed to computing systems in which bus arbitration units control the

20   access of data processors (called, in the parlance of this patent and apparently the industry, "masters"

21   or "bus masters") over the computing systems' buses to the shared resources of those processors

22   (called "slaves" or "bus slaves"), such as computer memory. The asserted claims of the '845 Patent

23   describe systems with multiple "data processing subsystems" (*e.g.*, bus masters) and multiple "slave

24   subsystems" (*e.g.*, bus slaves), which are coupled through "arbitration units" (Claim 1) or a "bus

25   arbitration module" (Claim 21). As explained therein, a bottleneck of access to memory can occur in

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27   [4] However, a court may always freely consult technical treatises and dictionaries in order to
28   understand the technology and to construe the claims, so long as no definition in the intrinsic
     evidence is contradicted. *Vitronics*, 90 F.3d at 1584 n.6.

1   computing systems with two "master" devices, such as a DSP (digital signal processor) and an MCU

2   (microprocessor control unit), where both master devices need access to a shared memory (*i.e.*, a

3   "slave") such as RAM (random access memory). ('845 Patent, Col. 1:54-67.) The object of the '845

4   Patent was to solve this memory access bottleneck through the use of structures that arbitrate access

5   to the shared bus slaves by the bus masters. ('845 Patent, Col. 2:1-20.) One of the key features of the

6   '845 Patent is that "[a] bus arbitration module selectively interconnects the buses, so that when the

7   plural bus masters each access a different bus slave, no blocking occurs." ('845 Patent, Abstract.)

8   "Blocking," in the context of signal transmission over a bus, refers to a configuration where one

9   transmission occupies the signal path, or bus, such that no other transmission can occupy that same

10   bus. (*See, e.g.*, Narad Dec. ¶ 30.)

11   **B.   CLAIM TERMS/PHRASES TO BE CONSTRUED FOR THE '845 PATENT**

12   Six claims from the '845 Patent are asserted: independent Claim 1, dependent Claims 2, and

13   5, which refer back to Claim 1; independent Claim 21, and dependent Claims 22 and 25, which refer

14   back to dependent Claim 21. Looking to the two independent claims at issue, Plaintiff describes

15   those claims as follows:

16   Independent Claim 1 also includes a "direct memory access (DMA) subsystem," which is a

17   device that allows access to system memory without use of a processor. In Claim 1, each "slave

18   subsystem" is associated with an "arbitration unit" that arbitrates among the bus masters (*i.e.*, the

19   "data processing subsystems" and the "DMA subsystem") for access to the "slave subsystem."

20   Independent Claim 21 covers a system that includes at least two "data processing

21   subsystems" and at least two "slave subsystems" with a "bus arbitration module" that couples the

22   local master buses to the local slave buses to provide access to the slave subsystems.

23   The parties request the Court construe two claim terms/phrases in the '845 Patent:

24   1. "configured and arranged to operate independently" ('845 Patent, Claims 1, 2, 5)

25   2. "independently accessed" ('845 Patent, Claims 21, 22, 25)

26   The claim construction dispute centers on the word common to both Claim 1 and 21:

27   "*independently*."

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Claim 1, recites the following (the language the parties have identified for construction is in bold and italics):

> 1. A system, comprising:
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> a first data processing subsystem comprising a first processor coupled to a first bus as a first bus master;
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> a second data processing subsystem comprising a second processor coupled to a second bus as a second bus master;
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> a direct memory access (DMA) subsystem comprising a DMA controller coupled to a third bus as a third bus master;
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> a first slave subsystem comprising a memory unit coupled to a fourth bus;
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> a second slave subsystem comprising a fifth bus;
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> a first arbitration unit associated with the first slave subsystem, having each of the first, second, third and fourth busses coupled thereto, configured and arranged to arbitrate among at least the first data processing subsystem, the second data processing subsystem, and the DMA subsystem for access to the first slave subsystem, and to couple the fourth bus to any selected one of at least the first, second, and third busses so as to enable a selected one of at least the first data processing subsystem, the second data processing subsystem, and the DMA subsystem to access the first slave subsystem; and
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> a second arbitration unit associated with the second slave subsystem, having each of the first, second, third and fifth busses coupled thereto, configured and arranged to arbitrate among at least the first data processing subsystem, the second data processing subsystem, and the DMA subsystem for access to the second slave subsystem, and to couple the fifth bus to any selected one of at least the first, second, and third busses so as to enable a selected one of at least the first data processing subsystem, the second data processing subsystem, and the DMA subsystem to access the second slave subsystem;
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> wherein each of the first and second arbitration units is ***configured and arranged to operate independently*** such [*sic*] the first arbitration unit can enable anyone of the first data processing subsystem, the second data processing subsystem, and the DMA subsystem to access the first slave subsystem at the same time that the second arbitration unit enables any other of the first data processing subsystem, the second data processing subsystem, and the DMA subsystem to access the second slave subsystem; and
>
> wherein the DMA subsystem is configured and arranged such that, when the first and second arbitration units enables the DMA subsystem to access each of the first and second slave subsystems, the DMA controller can cause data to be transferred between the first slave subsystem and the second slave subsystem via the third bus.

('845 Patent, Claim 1).

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   C.   THE FIRST DISPUTED CLAIM TERM – "CONFIGURED AND ARRANGED TO OPERATE INDEPENDENTLY" ('845 PATENT, CLAIMS 1, 2, 5)

5 The first disputed claim term, found in independent Claim 1, is "configured and arranged to

6 operate independently," and the parties' dispute focuses on the meaning of "independently." The

7 parties' proposed constructions are shown below:

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MEDIATEK'S CONSTRUCTION	FREESCALE'S CONSTRUCTION
configured and arranged to operate in parallel	separate physical structures that function without reliance or dependency upon another

12 The parties concur on the meaning of "configured and arranged to operate independently" insofar as

13 they agree that the patent describes a "no blocking" or "non-blocking" configuration for multiple bus

14 masters and multiple bus slaves that follows from use of the two bus arbitration units.[5] Where the

15 parties disagree is whether "independence" of the two arbitration units necessarily requires that they:

16 (1) be "separate *physical* structures;" and (2) operate "without *reliance* or dependence on another."

17 Both the physical separateness and the non-reliance concepts are urged by Freescale. By contrast,

18 MediaTek argues that its proposed construction, "in parallel," adheres to the claim language and the

19 specifications of the '845 Patent, while Freescale's proposal imports limitations that are not found

20 elsewhere in the patent. The Court analyzes each proposal in turn.

21 **1.   FREESCALE'S PROPOSED CONSTRUCTION : "SEPARATE PHYSICAL STRUCTURES"**

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   [5] This configuration is designed to allow one bus master to request access to one slave without a second bus master's request for a different slave "blocking," or interfering with, the first bus master's access. ('845 Patent, Abstract, 2:16-20, 3:10, 7:4-8, 7:26-36.) According to the patent, "non-blocking" operation is achieved through the independence of the arbitration units for the two different slaves because each master's request goes to a different, independent arbitration unit. ('845 Patent, 7:33-36, Fig. 3 [arbitration units 314-316].) Requests for slave access can occur synchronously or asynchronously so that two bus masters can request access to two different slaves, irrespective of whether requests are made at the same time or different times, and neither request will block the other. (*Id.* at Col. 9:31-37.)

1   Freescale's argument that the claim construction should include the term "separate physical

2   structures" fails on under the plain language of the claims, the specification, and the prosecution

3   history of the patent.

4   ### a.   Claim Language

5   The Court looks first the language of the claim itself. Claim 1 states, in pertinent part:

6   wherein each of the first and second arbitration units is ***configured and arranged
    to operate independently such [that]*** the first arbitration unit can enable any one
7   of the first data processing subsystem, the second data processing subsystem, and
8   the DMA subsystem ***to access*** the first slave subsystem ***at the same time*** that the
    second arbitration unit enables any other of the first data processing subsystem,
9   the second data processing subsystem, and the DMA subsystem to access the
10 second slave subsystem

11 '845 Patent, Col. 10:22-31 (Claim 1) (emphasis supplied).

12 Freescale first argues that "independently," in the context of Claim 1, requires a *physical*

13 separation between the arbitration units. Freescale emphasizes that Claim 1 requires "a first

14 arbitration unit *associated with* the first slave subsystem, . . . a second arbitration unit *associated with*

15 the second slave subsystem" and these two units are each "*configured and arranged* to operate

16 independently." ('845 Patent, 9:65-10:32). Because each is associated with a separate subsystem,

17 they must be physically separate. Moreover, Freescale contends, since the claim says "configured

18 <u>and</u> arranged," the word "arranged" must mean something different than "configured," and indicates

19 a *physical* arrangement. The Court looks first to the actual claim language.

20 First, the claim makes no specific mention of "physical separation." No explicit basis exists to

21 include the proffered limitation. Thus, in terms of construing the term to necessarily include the

22 "physical separation" because one skilled in the art would have read it so, the Court analyzes the

23 other words in the patent.

24 Second, the words in the claim itself do not imply a physical requirement. The term at issue

25 is followed by the word "such [that]" *i.e.,* "configured and arranged to operate independently such

26 that...."[6] The use of "such that" indicates, if not lexicography, at least some specification of the

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28 [6] The parties acknowledge that there is a typographical error and the claim should read "such
    that." (TR. at 28:17-19).

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meaning of the words preceding it. *See Taltech Ltd. v. Esquel Enterprises Ltd.*, 410 F. Supp. 2d 977, 1003 (W.D. Wash. 2006) (construing "the term 'folding such that. . .' to mean 'folding which creates or results in the relationship described following 'such that.'") Here, the language following the "such that" modifier speaks entirely in terms of functional, not spatial or physical, distinction. The claim describes a system whereby the first and second arbitration units are working "at the same time" to allow access by any one of three possible "master" subsystems to the arbitration unit's paired slave subsystem. Using the words "at the same time" implies a temporal element. The language does not support a physical element. The claim language recites that the "arbitration units" must be "coupled" to certain buses in order to perform their respective functions, but nothing in the language indicates that the "coupling" creates any physical requirements.[7]

Third, the words of the patent more broadly do not support a physical limitation. Claim 1, and the patent generally, uses the phrase "configured and arranged" repeatedly -- every time "configured" appears in the claim terms it is followed by arranged. (*See* Claims 7, 8, 9, and 19.) Each time the phrase is used, it is followed by language indicating that the manner in which the elements are "configured and arranged" is to enable a particular function or operation, not to establish a physical or spatial proximity. (*See, e.g.,* '845 Patent, Col. 9:67-10:9 ["to arbitrate…and to couple…"]; 10:12-21 [same]; 10:23-32["enable…to access… at the same time"]; 10:33-38 [same].) Thus, the plain language indicates a functional or logical arrangement, rather than a physical one.

b.   Specifications

Turning next to the specification of the '845 Patent, Freescale's construction finds no support there either. According to the language of the '845 Patent, the purpose of an "arbitration unit" is to manage access to its associated slave subsystem. (*See* '845 Patent, Col. 7:9-24.) As described in the specification, when different bus masters request access to different slave buses, "no blocking occurs because independent arbitration units handle the separate requests." ('845 Patent, Col. 7:32-35; *see also* Abstract ("no blocking occurs"); Col. 7:4-8 [arbitration units are arranged to "avoid blocking

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[7] As MediaTek points out, physical separation is not sufficient to meet the requirements in the claim itself: that the buses operate "such that" they are working "at the same time" to allow access by any one of three possible "master" subsystems to the arbitration unit's paired slave subsystem. One can easily posit a system in which there are two *physically* separate units seeking to transmit a signal simultaneously, resulting in blocking of the signal.

when multiple bus masters each request access to resources connected to different slave buses"]; 7:25-26 [structure of Figure 3 is "non-blocking"].) Thus, the independence of the units leads to the functional result of no blocking.

Freescale argues that Patent Figure 3 identifies of three arbitration units (314, 315, 316) which indicates a *physical* separation of the units. Freescale's reliance on Figure 3 for importing a physical separation concept into the claim term is not persuasive for three reasons:

First, a specification cannot be used to import a limitation into the claim that is not otherwise there. Even if Figure 3 were describing an embodiment that had physically separate structures, that would not necessarily justify such a limitation of Claim 1. Limiting a claim to one disclosed embodiment violates basic principles of claim construction. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005). *Home Diagnostics, Inc. v. LifeScan, Inc.,* 381 F.3d 1352, 1358 (Fed.Cir.2004) ("Absent a clear disavowal or contrary definition in the specification or the prosecution history, the patentee is entitled to the full scope of its claim language."); *Linear Tech. Corp. v. Int'l Trade Comm'n*, 566 F.3d 1049, 1055 (Fed. Cir. 2009); *cf. In re Translogic Tech., Inc.,* 504 F.3d 1249, 1257-58 (Fed.Cir.2007) (construing "input terminals coupled to receive" without a specific structural requirement because "the claim terms [did] not specify any structural connection for the input terminals ... and the ... figures show[ed] no structural connection for the input terminals ... or the control input terminals"). For example, the Federal Circuit in *Linear Tech* refused to construe the terms "second circuit" and "third circuit" to mean that the circuits must be structurally separate and distinct, since "nothing in the claim language or specification . . . support[ed] narrowly construing the terms to require a specific structural requirement." *Linear Tech.,* 566 F.3d at 1055. The court reasoned that the claim language only required that "the 'second' and 'third' circuits perform their stated functions," but it was obliged to accord the terms their full scope. *Id.*

Second, Figure 3 indicates that it is a block diagram, which does not necessarily imply a physical layout. The three arbitration units shown in Figure 3's block diagram are represented as (part of) a single Bus Arbitration Module in Figure 2. Figure 3 is described as a "more detailed block diagram of the bus architecture of Fig. 2," and Figure 2 as a "simplified schematic block diagram embodying aspects of the present invention." ('845 Patent, Col. 4:7-11.) The Bus Arbitration Module ("BAM") in Figure 2 is shown as one unit. In Figure 3, the more detailed block

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diagram shows what is inside the BAM -- three bus arbitration units, a DMA Bus and a DMA controller. ('845 Patent at 7:1-4) Figure 3 indicates that it is showing the relationship of the functional units within the system rather than a physical diagram or plan. MediaTek argues that, in an integrated circuit, as in an apartment building, functionally separate "units" may share common physical structures (like the walls between individual apartment units). A functional diagram like Figure 3 does not indicate whether or how much different units share or overlap the same physical space. Moreover, "it is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue." *Hockerson–Halberstadt, Inc. v Avia, Grp., Int'l, Inc,* 222 F.3d 951, 956 (Fed Cir. 2000). "[P]atent coverage is not necessarily limited to inventions that look like the ones in the figures. To hold otherwise would be to import limitations onto the claim from the specification, which is fraught with 'danger.'" *MBO Labs., Inc. v. Becton, Dickinson & Co.,* 474 F.3d 1323, 1333 (Fed.Cir.2007) (quoting *Phillips,* 415 F.3d at 1323; *see also Fujitsu Ltd. v. Belkin Int'l, Inc.*, 10-CV-03972-LHK, 2012 WL 4497966 (N.D. Cal. Sept. 28, 2012) (drawings in specification offered no support for importing physical limitation into claim term).

Third, the description of the arbitration units as separate structural units connected by a third structural unit does not lead to the conclusion of physical separation. Freescale argues that the two arbitration units must be separate because the claims indicate that there are two of them and they are connected by a bus. If they were not separate, it is argued, no bus would be needed to connect them. Moreover, the patent specification at, states that "[t]he three arbitration units 314, 315 and 316 are *structurally* identical (the arbitration methods can be different), but are each dedicated to their own bus 205, 206 and 207." ('845 Patent, Col. 7:12-15, emphasis added). Freescale concludes that "structurally" implies a *physical* structure. However, dependent Claim 2 explains that this invention can be implemented on a single integrated circuit. (Claim 2; see also Col. 4:31-32 ["FIG. 2 depicts a device 200, for example implemented as an integrated circuit."]) Implementation on a single integrated circuit would be contrary to the physical separation concept, since, as the parties acknowledge, an integrated circuit is a single physical chip. (See TR at 67:19-23 [counsel for Freescale: "that's what integrated circuit chips are all about, bringing many components onto one piece of glass to [save] space."].)

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A strong presumption exists against a construction that would lead to exclusion of a disclosed embodiment. *See In re Katz Interactive Call Processing Patent Litig.,* 639 F.3d 1303, 1324 (Fed. Cir. 2011) (excluding a patent's only embodiment is presumptively improper). Likewise, the court must apply the "presumption that the same terms appearing in different portions of the claims should be given the same meaning." *Digital-Vending Services Int'l, LLC v. Univ. of Phoenix, Inc.*, 672 F.3d 1270, 1275 (Fed. Cir. 2012). While Freescale counters that it is common for "separate" physical components to exist on the same integrated circuit, the Court finds that this observation only highlights the potential for ambiguity when a physical separation requirement is read into the claim term. Indeed, Freescale's own expert declaration speaks of different elements on a single integrated circuit chip as "*substantially* separate physical structures," implicitly conceding that they are not *completely* separate. (Smith Dec. ¶31, emphasis added). Thus, injecting the concept of "separate" structures, when the two "separate" units are located on the same physical circuit, possibly sharing the vast majority of their physical or spatial attributes, is not supported here.

c.   Prosecution History

Lastly, Freescale's proffer to rely on the prosecution history for its position is unavailing. As a basic proposition, "[a] patentee may claim an invention broadly and expect enforcement of the full scope of that language absent a clear disavowal" of that language either in the specifications or the prosecution history. *Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1357 (Fed. Cir. 2004). Here, Freescale argues that the patentee, in order to distinguish the prior art (specifically, the So Reference, Patent '559), amended Claim 1 to replace the words "bus arbitration module" with "a first arbitration unit and a second arbitration unit," each associated with its own separate slave subsystem. (Declaration of Joshua A. Hartman ("Hartman Dec."), Exh. I [Amendments to '845 Patent] at 3-4, 13-14.) In explaining the amendment, the patentee stated, "Claim 1 requires each of two different arbitration units to arbitrate among a first data processing subsystem, a second data processing subsystem, and a DMA subsystem for access to a respective slave subsystem associated with it. Such an architecture is not disclosed or suggested by *So*." (*Id.* at 14.) From this file history, Freescale contends it is apparent to one skilled in the art that each arbitration unit is a separate physical structure associated with physically separated slave subsystems.

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1   First, Freescale's expert offers nothing more than his bare conclusion to support the

2 argument. (Smith Decl. ¶ 38.) Moreover, extrinsic evidence does not aid construction when it

3 contradicts the intrinsic evidence. Again, Freescale seems to have confused the use of the words

4 "different units" to imply physical separation of the units. In the absence any more specific evidence

5 to explain why such a construction is warranted, the Court finds that "[t]his prosecution record

6 evinces no 'clear and unmistakable' disavowal of claim scope that would compel a result different

7 than the claim language." *ResQNet.com, Inc. v. Lansa, Inc.*, 346 F.3d 1374, 1383 (Fed. Cir. 2003)

8   **2.   *FREESCALE'S SECOND PROPOSED ADDITION:***
          "WITHOUT RELIANCE OR DEPENDENCY"
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10   Freescale offers two arguments in favor of including the language "without reliance or

11 dependence" in its construction of the claim term. Freescale first argues that the claim language and

12 specification support "without reliance," since they describe structures that are non-blocking and can

13 operate at the same time as one another. Second, Freescale argues that extrinsic evidence supports

14 the "without reliance on another" concept. The main support for this portion of its proposed

15 construction is extrinsic evidence in the form of dictionary definitions not of the claim term

16 "independently," but of the words "dependence" and "operate."

17   Freescale's argument for the construction "without reliance upon another" is not supported by

18 the plain language of the claim. Again, the Court must look to the claim language first. The Court

19 only looks to extrinsic evidence to the extent it aids in determining "the true meaning of language

20 used in the patent claims." *Phillips*, *supra*, 415 F.3d at 1318. As a general matter, extrinsic evidence

21 in the form of dictionary definitions is of limited value, and is weak support for adding a limitation

22 into a claim term. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1321-22 (Fed. Cir. 2005); *see also*

23 *Ferguson Beauregard/Logic Controls, Div. of Dover Resources, Inc. v. Mega Sys., LLC*, 350 F.3d

24 1327, 1347-48 (Fed. Cir. 2003) (J. Rader, concurring) ("a court can err by importing a limitation into

25 patent claims from a dictionary.")

26   The addition of "reliance" introduces ambiguity into the claim, since different parts of a

27 system could conceivably "rely" on "another" part of the system, or another arbitration unit, in a

28 multitude of ways (*e.g.* using a common power source) while still operating "at the same time" and

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"without blocking." The concept of "reliance" does not appear elsewhere in the claim term, or patent generally.

3. MEDIATEK'S ALTERNATIVE CONSTRUCTION: "PARALLEL"

In its competing construction, MediaTek argues that "in parallel" is a proper description of the claim term because "in parallel" is a term that is used ubiquitously in describing digital systems to mean "at the same time." (*See* Narad Dec. at ¶¶ 40, 41.) To support its definition, MediaTek relies not on the language of the patent, but on its expert. According to MediaTek, a person of ordinary skill in the art at the time of the '845 Patent would understand that if both arbitration units are providing access to their respective slave subsystems "at the same time," they are "operating in parallel."

The Court does not find MediaTek's proposed construction particularly helpful. As stated, the term "parallel" conjures a number of meanings. While the parties seem to agree that "parallel" is used ubiquitously in the art, they do not agree on its meaning or offer evidence to establish it. For example, Freescale's expert agrees with MediaTek's that "in parallel" normally means that two or more computing operations happen at the same time, but adds that the two "*have to*" happen at the same time. (*See* Smith Dec. at ¶ 43.) Even within the '845 Patent itself, the inventor seems to have used "parallel" to mean slightly different things depending upon the context. (*See, e.g.,* '845 Patent Co. 4:27-30 [using "parallel" in opposition to "serial"].) As a result, MediaTek's proposed construction does not clarify or explain the original claim terms.

4. SUMMARY

Freescale attempts to construe the claim in a limiting manner which is not supported by the patent. The addition of MediaTek's proposed language, while not incorrect, does not appear to be useful in clarifying the term. *Cf. Funai Elec. Co., Ltd. v. Daewoo Elecs. Corp.,* 616 F.3d 1357, 1366 (Fed.Cir.2010) (the criterion for deciding whether to include "comparative and functional language to construe and explain a claim term . . . is whether the explanation aids the court and the jury in understanding the term as it is used in the claimed invention.")

The word "independently," is susceptible to different meanings. Thus the Court finds that some construction could be useful. However, the Court is not satisfied with either party's proffered construction as to this disputed claim term.

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It is a basic claim construction principle that the same term is presumed to have the same meaning throughout all of the claims. *See Digital-Vending Services Int'l, LLC v. Univ. of Phoenix, Inc.*, 672 F.3d 1270, 1275 (Fed. Cir. 2012). Thus, the Court turns to consideration of the related claim term in dispute – "independently accessed" – before settling on a construction of "configured and arranged to operate independently."

D.   THE SECOND DISPUTED CLAIM TERM - "INDEPENDENTLY ACCESSED" ('845 PATENT, CLAIMS 21, 22, 25)

The Court next considers the related claim term, "independently accessed." Here, the parties' dispute again focuses on the meaning of "independently." The parties' proposed constructions are shown below:

MEDIATEK'S CONSTRUCTION	FREESCALE'S CONSTRUCTION
accessed in parallel	No construction necessary. *alternative*: accessed without regard to access to another slave subsystem

Claim 21 recites the following (with the disputed term in bold and italics):

> 21. A system, comprising:
>   a first data processing subsystem comprising a first processor coupled to a first bus as a first bus master;
>   a second data processing subsystem comprising a second processor coupled to a second bus as a second bus master;
>   a first slave subsystem comprising a memory unit coupled to a third bus;
>   a second slave subsystem comprising a fourth bus;
>   and a bus arbitration module (BAM), having the first, second, third, and fourth busses coupled thereto, configured and arranged to couple each of the third and fourth busses to any selected one of at least the first and second busses so that each of first and second slave subsystems can be ***independently accessed*** by either of the first and second data processing subsystems, thereby enabling the first and second data processing subsystems to access different ones of the first and second slave subsystems at the same time, the BAM being further configured and arranged to employ an arbitration scheme for access to at least a first one of the first and second slave subsystems in which, during any period when all requests for access to the first one of the first and second slave subsystems are of the same priority level, a first one of the first and second data processing subsystems is guaranteed to have access to a greater portion of the

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available bandwidth of the first one of the first and second slave subsystems than
is a second one of the first and second data processing subsystems.

('845 Patent, Claim 21.) Claim 21 thus includes a limitation concerning the "bus arbitration module (BAM)," which functions as a central arbiter to manage the buses coupling the master and slave subsystems. ('845 Patent, Col. 5:16-21.) Similar to the "arbitration units" in Claim 1 that "operate *independently*," the "slave subsystems" in Claim 21 can be "*independently* accessed . . . at the same time." ('845 Patent, Col. 13:7-16 (claim 21) (emphasis supplied).)

MediaTek argues that, as in its proposed construction of Claim Term 1, "independently" should be construed to mean "in parallel." As indicated above, in the claim language "independence" is defined in terms of allowing access "at the same time" and "without blocking," not physical separation or lack of reliance. ('845 Patent, Col. 13:7-16 (claim 21).) Thus MediaTek contends its construction is consistent with the plain language of the claim term.

Freescale argues that, for Claim 21, the word "independently" has a plain and ordinary meaning that does not need to be construed. Alternatively, Freescale proposes a construction of "without regard to access to another slave subsystem." Freescale contends that "without regard to access to another slave subsystem" is consistent with the specification of the patent, which indicates that the BAM has separate arbitration units for each slave bus which are "constructed and arranged to avoid blocking when multiple bus masters each request access to resources connected to the different slave buses." ('845 Patent, Col. 7:4-8.)

Under either proposed construction, Freescale's view of "independently" in Claim 21 differs from its view of the same term in the context of Claim 1. Freescale argues that the differing constructions are warranted because Claims 1 and 21 use "independently" in different contexts – one for two arbitration units operating "independently" and the second concerning two slave subsystems being accessed independently.[8]

THE COURT'S CONSTRUCTION:

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[8] Though Freescale argues that the file history supports its argument that these are distinct terms with distinct meanings, their general citation to pages 13-15 of the December 12, 2003 amendment (Hartman Dec., Exh I) does not shed any light on that argument.

1 As noted above with respect to the related term "configured and arranged to operate

2 independently," the Court finds that the term "independently" does require some construction to

3 avoid ambiguity and confusion. Likewise, the Court finds the same potential for confusion here, as

4 above, if the term "independently" is construed to mean "in parallel."

5 A claim term should not be given different meanings when it is used in different claims or

6 different portions of the claims (*i.e.*, different contexts) within the same patent. *Digital-Vending*

7 *Servs. Int'l*, 672 F.3d at 1275. Here, while the events that happen "independently" in Claim 1 and in

8 Claim 21 are different ("operate" versus "access"), the meaning of "independently" appears to be the

9 same – enabling an action to occur "at the same time" and "without blocking."

10 However, the Court finds that Freescale's alternative construction, defining "independently"

11 to mean "without regard to," provides a helpful clarification for the disputed term. It captures the

12 concept of access that occurs without blocking and at the same time as stated in the specification.

13 (*See* '845 Patent Col. 2:18-20; 7:6-8; 7:25-26; 7:33-36; 7:39-41; Fig. 3.)[9] Such a construction does

14 not import improper limitations and is true to the meaning of the Patent. Moreover, that concept of

15 "independently" also fits for the disputed term above, "configured and arranged to operate

16 independently," as used in '845 Patent, Claims 1, 2, and 5, allowing for a consistent construction of

17 an identical term in both related claims.

18 Accordingly, the Court construes the term "independently accessed" in the '845 Patent,

19 Claims 21, 22, and 25, and the term "configured and arranged to operate independently" in the '845

20 Patent, Claims 1, 2, and 5 as follows:

DISPUTED CLAIM TERM/PHRASE	CONSTRUCTION
"configured and arranged to operate independently"	*"configured and arranged to operate without regard to the other arbitration unit"*
"independently accessed"	*"accessed without regard to the other slave subsystem"*

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[9] The Court notes that construing "independently" to mean "without blocking" would appear to be consistent with both parties' understandings of the word as used in both disputed claim terms, as well as with the specification in the '845 Patent. However, given that neither party proposed such a construction or briefed that particular issue, the Court adopts the construction of "independently" it finds most reasonable based upon the record before it at this time.

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II.   THE '753 PATENT AND DISPUTED CLAIM TERM

A.   BACKGROUND

The '753 Patent is entitled "Bus Arrangements for Interconnection of Discrete and/or Integrated Modules in a Digital System and Associated Method." The patent describes a system for providing high-speed, digital data transfer between the different modules in a digital system, by optimizing the utilization of the buses. (Patent '753 Abstract.) The patent is meant to provide a solution to the problem created when multiple modules within a computing system compete for shared resources, resulting in inefficient utilization by the system's buses. The '753 patent provides for flexibility in connecting multiple modules with different latency requirements (*i.e.*, how urgently a module needs access to the bus) and bandwidth requirements (*i.e.*, how long the module needs access to the bus). Asserted Claim 2 of the '753 patent provides a method for "simultaneously executing" data transfers between two different pairs of components via a bus arrangement that "interconnects" all four components.

**B.   CLAIM TERM TO BE CONSTRUED IN THE '753 PATENT :
"INTERCONNECTING" ('753 PATENT, CLAIM 2)**

The only claim construction dispute for the '753 patent is for the term "interconnecting," which appears in the preamble in Claim 2. The language of Claim 2 is as follows:

> 2. In a digital system including a bus arrangement having at least one address bus and at least first and second data busses for *interconnecting* a plurality of components including first, second, third and fourth components in a predetermined way, a method comprising the steps of:
>   a) performing on said bus arrangement at least a first address transaction between said first and second components and at least a second address transaction between said third and fourth components, said first and second address transactions defming [*sic*] respective first and second data transfers; and
>   b) simultaneously executing at least for a duration of time said first data transfer between said first and second components on said first data bus and said second data transfer between said third and fourth components on said second data bus.

('753 Patent, Claim 2.)

MEDIATEK'S CONSTRUCTION	FREESCALE'S CONSTRUCTION
Plain and ordinary meaning; does not require	Connecting so as to be able to transmit and

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construction. *Alternative construction:* coupling so as to be able to transmit and receive a signal	receive a signal without intervening modules or switches

The parties' dispute center on whether "interconnecting" must be ***direct***, *i.e.,* "without intervening modules or switches" (as Freescale argues), or not (as MediaTek claims).

1.   Specification and Figures

Both parties focus on Patent Figure 1 as supporting their competing constructions. Patent Figure 1 is described as "an embodiment of a digital system manufactured in accordance with the present invention and generally indicated by the reference numeral 10." ('753 Patent, Col. 5:62-64.) "System 10 includes a host processor 12, a memory bank A indicated by the reference number 14 and a memory bank B indicated by the reference number 16. Host processor 12 is connected with a host interface module 18. Memory bank A is connected with a memory A control module 20 while memory bank B is connected with a memory B control module 22." (*Id.,* Col. 5:64-6:4.) "System 10 further includes a bus arrangement implemented in accordance with the present invention and generally indicated by the reference number 40. Bus arrangement 40 includes a module interface arrangement 41 which is comprised of a link layer portion 42 which interfaces directly with a physical layer portion 44." (*Id.*, Col. 6:40-45.)

Relying on Figure 1, Freescale argues that, for example, a transmission between Host Interface Module **18** and Memory A Control Module **20** would be transmitted directly from one module to the other via the "bus arrangement," without any intervening modules or switches, thus supporting its construction of "interconnecting." Freescale argues that, although they are represented as separate items in Figure 1, the "bus arrangement" includes the entire Modular Interface Arrangement **41**, as well as the address and data buses and the bus controller. Leaving aside the question of whether that encompassing view of the "bus arrangement" is correct, Freescale's argument appears to suffer from a more obvious flaw. Freescale's example relies on the assumption that the components in Figure 1 outside the rectangular dashed line, like the Host Processor **12** and

Memory Bank A **14**, are irrelevant and not part of what Claim 2 is meant to describe. (*See*

Transcript 107:5-108:2 [Freescale's position that these components are not "interconnected"].)

Again, Claim 2 states, in pertinent part, a "[i]n a digital system including a bus arrangement

having at least one address bus and at least first and second data busses for interconnecting a

plurality of components…." (Claim 2, emphasis added.) The specification indicates that Host

Processor **12** and Memory Bank A **14** are connected and can transmit data through the bus

arrangement. (*See* Fig. 4a; Col. 12:19-21 ["Still referring to FIGS. 1 and *4a,* T_1 represents a first

data transfer from host processor **12** (source) to memory bank **A** (destination)"] and Col. 12:61-63

["bus controller **60** must select data bus A for T_1 since memory A is the destination module of the

transaction."].) Consequently, according to Figure 1 and its detailed description, a transaction

between those two components or modules will necessarily travel from Host Processor **12**, through

the Host Interface Module **18**, the modular interface arrangement **41**, the data bus A, and eventually

through to Memory A controller module **20** to reach Memory Bank A **14**, its destination. (*See* Fig. 1,
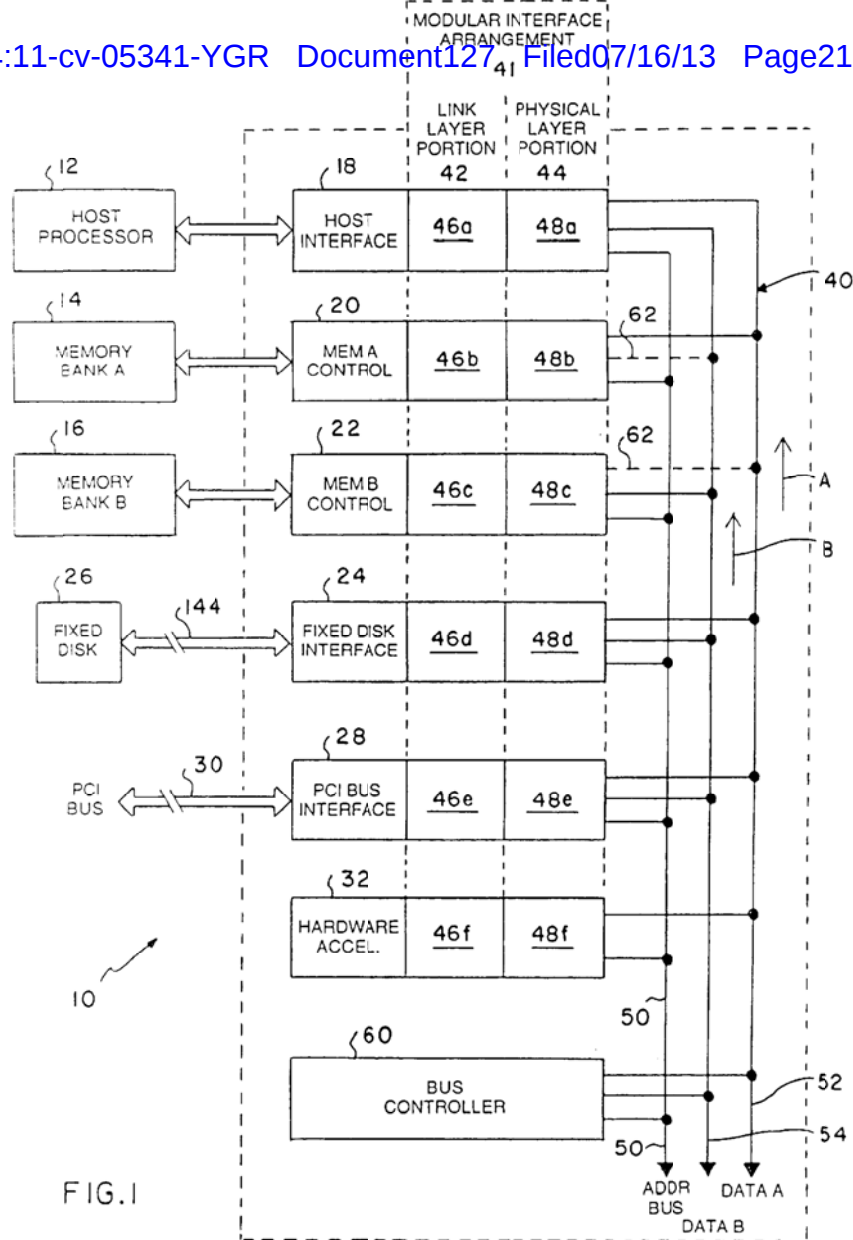
Col. 12:19-21, 61-63.)

FIG.1

Reading the claim language and specification in conjunction with Patent Figure 1 indicates two things: (1) that the Host Processor and Memory Bank are not irrelevant to the Claim; and (2) that a transaction described in Claim 2 goes through intervening modules. Consequently, the specification and figures contradict Freescale's proposed limitation. Freescale's introduction of the limitation "without intervening modules or switches" would exclude this embodiment disclosed in the specifications. Excluding such disclosed embodiments violates a basic canon of claim construction law. *See In re Katz*, 639 F.3d at 1324 ("there is a strong presumption against a claim construction that excludes a disclosed embodiment"); *see also Gillette*, 405 F.3d at 1374.

Other uses of the same term in the Patent contradict Freescale's proposed construction as well. The term "interconnecting" is used multiple times in the '753 Patent. Other claims use the term "interconnect" to refer to connections among multiple components by way of a single bus; none

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of the other claims requires that connections be direct, without any intervening modules or

components.[10] Similarly, in the "Summary of the Invention," the Patent describes an implementation

in which "[t]he bus arrangement includes an address bus *interconnecting* the processing module with

the memory means and at least two, separate data busses which are arranged so as to *interconnect* the

processing module and the memory means in a predetermined way." ('753 Patent, Col. 4:17-21,

emphasis supplied.) It goes on to describe another implementation in which "[t]he system further

includes a bus arrangement *interconnecting* the processing module and the memory storage

arrangements in a predetermined way." (*Id.* at 4:42-44.) There is nothing intrinsic to the word

"interconnecting" itself that would require Freescale's proffered construction.

2.   *Claim Preamble*

Turning to the language of Claim 2 itself, the term in dispute appears not in the body of the

claim, but in the preamble to that claim. Generally, language in the preamble of a claim is not

limiting if the preamble only states the purpose or intended use of the invention and the body states a

structurally complete description of the invention. *See Catalina Marketing Int'l., Inc. v.*

Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002). Here, MediaTek argues that the disputed

term "interconnecting" appears only in the preamble of this method claim to describe how the

method would work in a system with some basic requirements, one of them being "interconnecting."

MediaTek argues that the description in the preamble is not the invention itself, but merely a

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[10] *See* Claim 1(d) "a bus arrangement including: (i) an address bus interconnecting said
processing module and each said memory controller"

Claim 3: "In a digital system including an address bus and at least two data busses which
interconnect a plurality of components in a predetermined way such that each data bus is arranged
independently of the other so as to *interconnect* a common group of at least three of the components

Claim 5 (c): "a bus arrangement *interconnecting* said processing module and said memory
storage arrangements in a predetermined way, said bus arrangement including an address bus and at
least two separate data buses each of which is arranged independently of the other so as to
interconnect said processing module with each of said memory means such that a data transaction
using either one of the memory arrangements may be performed using either of the data buses."

Claim 6: "A digital system, comprising: (a) a plurality of components; (b) a bus arrangement
interconnecting said components in a predetermined way, said bus arrangement including an address
bus on which address transactions are performed and at least two data buses on which data
transactions are performed between the components with at least one of the data buses connected to
each component and such that each data bus is arranged independently of the other so as to
interconnect a common group of at least three of the components." ('753 Patent at Cols. 72:12-14;
72:41-45; 72:65-73:6; 73:7-17.)

description of the environment in which the invention operates, specifically "a bus arrangement having at least one address bus and at least first and second data busses for *interconnecting* a plurality of components including first, second, third and fourth components in a predetermined way." Thus, based on the plain language itself, MediaTek argues that nothing in this preamble claim language is meant to be limiting and no construction is necessary.

"Whether to treat a preamble as a limitation is a determination resolved only on review of the entire patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim." *Catalina Mktg.,* 289 F.3d at 808. "In general, a preamble limits the invention if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim." *Id.* (internal quotation omitted). "Conversely, a preamble is not limiting where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention." *Id.* (internal quotation omitted). "[P]reambles describing the use of an invention generally do not limit claims because the patentability of apparatus or composition claims depends on the claimed structure, not on the use or purpose of that structure." *Id.* at 809. However, "clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention." *Id.* In short, the significance the language appearing in the claim's preamble depends on other factors discerned from the intrinsic evidence.

3.   *Prosecution History*

Finally, Freescale's reliance on the Patent's prosecution history is likewise unavailing. Freescale argues that MediaTek's construction of "interconnecting" for Claim 2 would encompass certain prior art and would result in the invalidity of Claim 2, which would not be a proper construction of the term. During the prosecution of the application that became U.S. Patent No. 5,983,303 (the '303 patent, Hartman Decl. Exh. E), the parent to Claim 2 of the '753 patent, the applicant overcame rejections based on two prior art references.[11]   One of these references (*Kock*)

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[11]   Those two prior art references were U.S. Patent No. 5,289,585 (Hartman Dec. Exh. F, "the *Kock* reference") and U.S. Patent 5,483,642 (Hartman Dec. Exh. G, "the *Okazawa* reference").

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has an intervening switch between the modules and the other has an intervening memory module between the processing modules (*Okazawa*).

Statements in the prosecution history that shed light on the meaning given to terms by the patentee and PTO at the time can support a construction of the term. *See Watts v. XL Sys., Inc.,* 232 F.3d 877, 883-84 (Fed. Cir. 2000) (statements made in the prosecution history to overcome the rejection of a certain claim were made broadly and therefore limited the scope of every claim); *Novo Nordisk,* 77 F.3d at 1369-70 (statements made in the prosecution history that distinguished the prior art from the "present invention" and touted the benefits of the "present application" limited the claim scope to the description of the invention made by the applicant). However, prosecution history cannot be used to narrow a claim absent the applicant's clear disavowal of claim coverage in the prosecution history. *Amgen v Hoeschst Marion,* 314 F.3d 1313, 1327 (Fed. Cir. 2003) ("prosecution history may not be used to infer the intentional narrowing of a claim absent the applicant's clear disavowal of claim coverage, such as an amendment to overcome a rejection"); *Home Diagnostics v. LifeScan*, 381 F.3d 1352, 1357 (to overcome the full scope of the meaning of claim terms in the relevant community at the relevant time, challenger must show "clear disavowal of such scope in the specification, prosecution history, or both").

When prior art is referenced by the patent applicant and considered by the PTO examiner, a challenger "has the added burden of overcoming the deference that is due to a qualified government agency presumed to have properly done its job, which includes one or more examiners who are assumed to have some expertise in interpreting the references and to be familiar from their work with the level of skill in the art and whose duty it is to issue only valid patents." *Am. Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1359 (Fed. Cir. 1984) *abrogated on other grounds by Therasense, Inc. v. Becton, Dickinson & Co.*, 649 F.3d 1276 (Fed. Cir. 2011); *Ultra-Tex Surfaces, Inc. v. Hill Bros. Chemical Co.*, 204 F.3d 1360, 1367 (Fed. Cir. 2000). Construing a claim to preserve its validity in relation to prior art is not "a regular component of claim construction," and should only be employed where there is ambiguity in the claim language. *Phillips*, 415 F.3d at 1327.

Here, while certain claims did not survive the Patent Examiner's review, the prior art was considered and Claim 2 allowed in substantially the same form as now exists.

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a.   *Kock Reference*

Freescale contends that in the '303 patent application, the patentee overcame prior art rejections by addressing two propositions.[12] First, MediaTek stated that the then-pending claim required modules that "communicate directly with" other modules and this statement should be carried forward to Claim 2 of the '753 patent. (Hartman Decl. Exh. H, '303 Prosecution History, Dec. 16, 1998 Amendment at 12-13) In the *Kock* reference, the processor modules had intervening cache memory modules between the processor module and the bus, leading the applicant to state that the processors did not communicate *directly* with the other processors. (Hartman Decl. Exh. H, '303 Prosecution History, Dec. 16, 1998 Amendment at 12-13.) Freescale contends that the *Kock* reference would read on Claim 2 if "interconnecting" allowed for intervening cache modules between the processor modules and the bus. (Smith Decl. ¶ 85.) Thus, "interconnecting" must be construed to exclude a connection with intervening modules.

Second, Freescale points to the prosecution history showing that the *Kock* reference was overcome by stating that "the present invention" required that modules "communicate directly with" other modules. (Hartman Dec. Exh. H, '303 Prosecution History, December 16, 1998 Amendment at 12-13; Smith Decl. ¶¶ 80-81.) Freescale argues that in the *Kock* reference there were intervening cache memory modules between the processor module and the bus, leading the applicant to state that the processors did not communicate "directly" with the other processors. (Hartman Decl. Exh. H, '303 Prosecution History, Dec. 16, 1998 Amendment at 12-13; Smith Decl. ¶¶ 82-84.) Freescale contends that the patentee argued that modules were not "interconnected" in the *Kock* reference because there were intervening modules and they did not sit on the same bus.

The Court disagrees. That portion of the prosecution history indicates that the distinction being drawn between *Kock* and the parent patent at issue was that, in *Kock*, there was no intervening step of *storing* the data to be transferred in a cache memory or main memory before it was sent on to the processing unit. (*Id.* at 12.) Parent Patent '303 is entitled "Bus Arrangements for

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[12] Claim 31 of the '303 Patent became Claim 2 of the '753 Patent. Accordingly the prosecution history is equally applicable.

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1   Interconnection of Discrete and/or Integrated Modules in a Digital System and Associated Method."

2   The applicants' remarks on the amendments stated:

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4   the present invention does not require the use of cache memories, as does the
             Kock reference. <u>Processing units, in accordance with the present invention,</u>
             <u>communicate directly with other processing units</u>. . . modules are connected with
5   the bus arrangement by means of module interface arrangement. . . Rather than
             introduce the need for intermediate storage of data in cache memories, data
6   transactions are performed directly between processing means of the modules via
             the bus arrangement.
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8   (*Id.* at 12-13.) The term "interconnect" does not actually appear anywhere in the discussion of the

9   *Kock* reference. The only "intervening" items the patentee was disclaiming were intermediate

10   storage in memory. Further, the history referenced here focused on the claims 18 and 25 of parent

11   Patent '303, not Claim 31 (the predecessor of the claim at issue here).

12   In short, read in context, and with this understanding of its limitations, nothing in the

13   amendments concerning the *Kock* reference specifically disclaims or limits Claim 2 of the '753

14   Patent to a connection "without intervening modules or switches." Thus, Freescale does not

15   overcome the presumption that the claims are not so limited, nor the presumption that the PTO

16   examiner correctly understood the differences between the prior art *Kock* reference and the

17   application for the parent patent here. *See Am. Hoist and Derrick,* 725 F.2d at 1359.

18   **b.   *Okazawa Reference***

19   Similarly, Freescale argues that the *Okazawa* reference, also cited during prosecution, would

20   anticipate claim 2 if "interconnecting" was construed such that it allowed intervening modules or

21   switches. The examiner rejected certain claims as anticipated by *Okazawa* based on the application's

22   inclusion of "at least two separate data buses which are arranged so as to interconnect said

23   processing module and said memory means in a predetermined way." ('303 Prosecution History,

24   Dec. 16, 1998 Amendment at 11.) As with the *Kock* reference, Freescale argues that *Okazawa*

25   discloses a switching arrangement that interconnects buses such that the buses do not connect the

26   main memory directly to the processor (*i.e.,* without intervening modules). Freescale's expert says

27   the figures and specifications in *Okazawa* show that the specifications in *Okawaza* would anticipate

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1   Claim 2 if "interconnecting" was construed to allow intervening modules, without much further

2   elaboration. (Smith ¶¶ 86-88.) Again, there are a number of problems with this conclusion.[13]

3   First, as MediaTek notes, the language in the prosecution history cited by Freescale

4   concerned the PTO's rejection of a different claim in the parent '303 Patent. The rejection language

5   specifically concerned Claim 1 of the '303 Patent, while it was Claim 31 of the '303 Patent that

6   eventually became Claim 2 of '753 Patent, the claim at issue here. However the patentee's remarks

7   with respect to the amendment of Claim 31 say that the examiner obviously meant to rely on

8   *Okazawa*, and that the *Okazawa* reference had been overcome as to Claim 31 for the same reasons as

9   in Claim 1. Therefore the patentee's arguments with respect to *Okazawa* and Claim 1 may be

10   pertinent to understanding Claim 2 of the '753 Patent.

11   Regardless, the remarks and amendments as to Claim 31 do not address the question of

12   "interconnecting." Instead, the remarks and amendment there highlight other distinctions from

13   *Okazawa*, particularly independence and the *simultaneously executing* limitation. (*See* Hartman Exh.

14   H at 14-15.) The amendment to Claim 31 added language clarifying the body (not the preamble) of

15   the claim, to say that the invention is performing two different address/data transactions between two

16   different sets of components and executing those transactions simultaneously. (*Id.* at 14-15.) The

17   patentee's response to the examiner's rejection was to say that: "Applicants submit that the art of

18   record in any reasonable combination fails to teach, disclose, or reasonably suggest an architecture

19   having two data buses configured such that separate data transactions may be performed

20   simultaneously on the data buses." (*Id.* at 15, emphasis in original.)[14]

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[13] MediaTek objects that Freescale's brief does not support the argument, made for the first
time at the hearing, that the patentee's remarks during amendments reveal the correct meaning of the
language "interconnecting," but only argued that *Okazawa* anticipated Claim 2 of the '753 Patent.
While the Court recognizes that these are two different theories of the relevance of the evidence, they
bear enough similarity that the Court will consider the newer argument based on this same evidence.

[14] MediaTek also argued at the hearing that a further statement in the prosecution history
from January 21, 1999, definitively shows that the examiner's prior rejection in December 1998
mistakenly cited *Okazawa* when it meant *Kock*. (*See* Transcript of Hearing at 96). However, that
portion of the record was not included with either party's briefing. Given that the Court concludes
that the prosecution history in the record supports MediaTek's construction, the Court will not
review any additional history for further support of this argument.

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1   To the extent that the referenced remarks relied on other arguments relating to the rejection

2   and amendment of Claim 1, that history does not indicate that "interconnecting" has a different

3   definition than as used here. Specifically with reference to Claim 1, amendments were made to

4   clarify that "at least two, separate data busses each of which is arranged independently of the other so

5   as to interconnect said processing module and said memory means in a predetermined way." (*Id.* at

6   11.) This feature, the patentee explained, distinguished *Okazawa* because the buses of *Okazawa* "do

7   not independently interconnect his main memory 104 with his processor 101," and the true nature of

8   the *Okazawa* invention was "a three-way switch for interconnection of buses which are separate from

9   one another," or as explained elsewhere in the remarks "<u>a three-way connection of three kinds of</u>

10   <u>buses</u>." (*Id.* at 11, emphasis in original.) As the amendment remarks point out, the *Okazawa*

11   reference disclosed "a configuration of <u>function specific</u> buses." (Hartman Exh. H at 11, emphasis in

12   original.) Even assuming that this language is meant to apply to the meaning of Claim 2, an

13   assumption not clearly supported by the prosecution history, the language does not meet the

14   significant burden to show either that the applicant disavowed a broad claim scope encompassing

15   connection regardless of intervening modules, or that the PTO examiner was mistaken in finding the

16   claim language distinguishable from the prior art reference.

17   Claims are presumed to be valid. The PTO considered these and other prior art references

18   and approved the challenged claims. There's nothing in the plain language or the prior art which

19   unambiguously disclaims connecting through other modules or switches. The embodiments cited by

20   Freescale are consistent with a construction that does not limit Claim 2 to connections without

21   intervening modules or switches. Therefore, the limitation proposed by Freescale is improper.[15]

22   ***THE COURT'S CONSTRUCTION:***

23   Based upon the foregoing, the Court concludes that the construction offered by Freescale for

24   the term "interconnecting" in the '753 Patent, Claim 2, is not appropriate and, accordingly, the Court

25   finds that the term does not require construction.

26   **III.   CONSTRUCTION OF TERMS IN THE '244 PATENT**

27   **A.   BACKGROUND**

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[15] The Court is not relying on any extrinsic evidence submitted by the parties.

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1   The '244 patent describes a method for allocating priority in a digital system where multiple

2   modules compete for use of the bus, *i.e.* bus arbitration. The modules are configured such that each

3   module will be granted its request to use the bus based upon its priority. Typically, a bus system

4   assigns priorities to modules at system start-up and then an arbitration unit grants access to the bus.

5   When the arbitration unit receives requests for use of the bus from more than one module, it grants

6   requests according to the priority values of the requesting modules. The arbitration unit grants first

7   access to the higher priority module and subsequent access to the lower priority module. The '244

8   patent describes a method whereby a set of priorities is established during operation of the system,

9   and each module may be reassigned to different priorities as operation continues. Past priority

10   allocation implementations were inflexible in that they did not provide the ability to adjust the

11   relative priorities of modules during the operation of the system. These prior systems also failed to

12   maximize bus bandwidth by not taking into account the different data transfer rates of the multiple

13   modules when granting access to the bus. The '244 patent resolved these issues by providing

14   flexibility in granting access to a system bus.

15   Asserted claim 2 of the '244 patent covers an improved method for granting bus access to a

16   "plurality of modules." Independent Claim 2 and dependent Claim 3 of the '244 patent cover an

17   alleged improvement over the prior art consisting of an arbitration method which denies access to a

18   module having the highest priority when certain conditions are met ('244 patent, 25:25-38), and

19   instead grants access to a lower-priority module based on those conditions (*id.*, 25:29-42).

20   **B.   CLAIM TERMS/PHRASES TO BE CONSTRUED IN THE '244 PATENT:**

21   **"PREDETERMINED PARAMETERS"**

22   There is one disputed term in the '244 patent: "predetermined parameters" in independent

23   Claim 2 and dependent Claim 3. The language of independent Claim 2 is as follows:

24   2. In a method of operating a system including at least one bus which
         interconnects a plurality of modules in a predetermined way, each of said modules
25   being capable of requesting the use of said bus during the operation of the system
         and each module being granted its request based on an established scheme of
26   priorities, the improvement comprising:
             a) based on a request made by a particular module, establishing that said
27   particular module has the highest priority for the use of said bus in relation to any
         other modules concurrently requesting the use of the bus; and
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> b) nevertheless refusing to grant the use of the bus to the highest priority
> module based upon ***predetermined parameters***.

('244 Patent, Claim 2, emphasis supplied.) Dependent Claim 3 goes on to say:

> 3. The improvement according to claim 2 further comprising the step of granting
> the use of said bus to one of said other requesting modules based upon said
> ***predetermined parameters***.

('244 Patent, Claim 3, emphasis supplied.)

MEDIATEK'S CONSTRUCTION	FREESCALE'S CONSTRUCTION
[two or more] variables set to a specific value at a prior time	two or more distinct properties determined prior to granting the use of the bus

The parties have agreed with respect to the first part of the construction, *i.e.* that there must be "two or more" variables or properties determined prior to some event. They disagree on whether: (1) the variables/properties must be "*distinct*;" and (2) the parameters must be set "prior to *granting the use of the bus*," as proposed by Freescale, or just "at a prior time" as proposed by MediaTek.

C.   CLAIM LANGUAGE

1.   "Parameters"

First, Freescale contends that the "parameters" claim language requires that the parameters, or variables, be both (a) "distinct," *i.e.* that they must be of a different *type* from one another and (b) a "property" rather than "variable," emphasizing categorization where each item is dissimilar, not a variation or value of a single category. To support this construction, Freescale focuses on the use of the same term in Claims 4 and 7. Each of those claims refer to "speed value" in the singular, *i.e.* a parameter. Freescale contends where the claim terms refer to a plurality of "predetermined parameters," speed value is only one type of parameter. (*See* '244 Patent, Claim 4 [describing "said speed value" as "at least one of said predetermined parameters"] and Claim 7 [stating "predetermined parameters includ[e] said speed value"].)[16] Thus, while different values in the

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[16] Claim 4 states: "The improvement according to claim 2 further comprising the step of assigning a speed value to each module prior to any module bus use requests and, thereafter, using said speed value as at least one of said predetermined parameters." Similarly, Claim 7, states:

1   category of "speed value" are assigned to the different modules, "speed value" is "one" of the

2   "parameters" that might be taken into account in deciding whether to refuse access.

3   The Court agrees that the context of the other claims requires that "parameters" be clarified to

4   refer to different categories of information, not merely different values within the same category.

5   The use of the identical term in Claim 7 indicates that "parameters" is meant to refer to different

6   categories of information that might be used to determine whether to "refus[e] to grant use of the

7   bus." More precisely, the method taught by Claim 7 would permit "refusing to grant use of the bus

8   to the highest priority module based upon *one* or more predetermined parameters." ('244 Patent,

9   Claim 7, emphasis added.) Taking the plain language of the claim, refusal can be based upon *just*

10   *one* parameter. Given that multiple speed values have, by definition, been defined to multiple

11   modules, the language of Claim 7 is not evaluating each of those "speed values" as a separate

12   "parameter." If it was, the language would have to read "two or more" to account for the multiple

13   speed values. Thus, the term "parameters" is not being used in Claim 7 to refer to multiple "speed

14   values." A construction of the same term in Claim 2 should be consistent with that usage.

15   MediaTek's arguments do not compel a different result. MediaTek argues that its

16   construction is supported by the patent specifications, while Freescale's would exclude

17   impermissibly a preferred embodiment. MediaTek argues that Table 5 shows that the different

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19   7. In a method of operating a system including at least one bus which

20   interconnects a plurality of modules in a predetermined way during the execution
   of a plurality of clock cycles, each of said modules being capable of requesting

21   the use of said bus during the operation of the system and each module being
   granted its request based on an established scheme of priorities, the improvement

22   comprising:

23   a) **assigning a speed value to each module** prior to any module bus use
   requests which speed value specifies a minimum number of clock cycles between

24   bus grants;

        b) based on a request made by a particular module, establishing that said

25   particular module has the highest priority for the use of said bus in relation to any
   other modules concurrently requesting the use of the bus; and

26   c) nevertheless refusing to grant the use of the bus to the highest priority

27   module **based upon *one or more* predetermined parameters *including said***
   ***speed value* such that**, even though said particular module with the highest

28   priority among requesting modules requests the use of the bus

   ('244 Patent, Claim 7, emphasis supplied.)

1   assigned "speed values," and each speed value constitutes one of the "predetermined parameters"

2   employed by the claimed method. MediaTek argues that, in the preferred embodiment, two different

3   modules both provide their respective, previously configured speed values (FB_MSPEED and

4   FB_SSPEED) via bus signals, and the predetermined values for these two variables are considered in

5   refusing bus access to one of the modules, i.e. the different "parameters" considered in the arbitration

6   are of the same type, "speed value." ('244 patent, Table 5, cols. 9:52-10:34, 12:66-13:1; *see also*

7   '244 Patent, Col. 15:15-25 [embodiment where two different modules competing for use of the bus

8   each have a specific speed variable from which the bus controller must determine whether to refuse

9   or grant access].) MediaTek contends that Freescale's proposed addition of the word "distinct" to its

10   construction would result in the exclusion of these disclosed embodiments of the '244 patent from

11   the scope of claims 2 and 3.

12   The Court disagrees. The description of Table 5 indicates that it is an illustration of the

13   assignment of different speed values to different modules. Nothing in the table itself or the

14   specification text cited indicates that each speed value would constitute a different "parameter."

15   Further, nothing in the specifications cited by MediaTek uses the term "parameter" or indicates that

16   each speed value is considered a different parameter. (*See* '244 Patent at at Col. 15:15-25.) Claim 7

17   recites that an embodiment of the invention could use just ***one*** "parameter" to determine whether to

18   refuse access to the bus. Table 5, showing the different values that could be assigned to that one

19   parameter, is consistent with this construction.

20   ***2.   "Predetermined"***

21   Freescale next argues for construction of the "predetermined" portion of the claim term to

22   mean "determined *prior to granting* the use of the bus." The language of the claim teaches a method

23   of:

24   nevertheless refusing to grant the use of the bus to the highest priority module
             based upon ***predetermined parameters***.

25   ('244 Patent, Claim 2.) The plain language of Claim 2 requires that the "predetermined parameters"

26   be determined at some time prior to the *refusal* to grant access to one module. Freescale's

27   construction seeks to tie the determination of the values to the *grant* of access to the bus.

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1   MediaTek's construction proffers "at a prior time" without specifying any connection to any

2   particular event or time to which it is "prior."

3   MediaTek argues that its construction stays truer to the principle of not reading limitations

4   into the claim language. It contends that Freescale's construction, which ties the values to the "grant

5   of access," implies that the "parameters" are determined "prior to the *first* use of the bus." So, for

6   instance, Freescale's construction would preclude a scenario otherwise permitted by the actual claim

7   language: granting a module initial access to the bus and then, based on parameters determined *after*

8   the initial grant of access, denying *further* use of the bus. MediaTek also argues that Freescale's

9   construction of "predetermined" improperly imports limitations specified in subsequent claims, *i.e.*

10 dependent Claim 4's "prior to any module bus use requests," into Claim 2. Similarly, such a

11 construction would import into Claim 2 the limitation of dependent Claim 3, "further comprising the

12 step of ***granting*** the use of said bus to one of said other requesting modules based upon said

13 predetermined parameters." ('244 Patent, Claim 3.)[17]

14   The Court agrees that Freescale's construction could render the dependent claim limitations

15 redundant and violate the principle of claim differentiation. An independent claim, by implication,

16 embraces more than its narrower dependent claim. *See, e.g.*, *Intamin, Ltd. v. Magnetar Techs., Corp.*,

17 483 F.3d 1328, 1335 (Fed.Cir.2007). It is improper to import a limitation from a dependent claim

18 into the independent claim. *Phillips*, 415 F.3d at 1315 ("the presence of a dependent claim that adds

19 a particular limitation gives rise to a presumption that the limitation in question is not present in the

20 independent claim").

21   MediaTek's proposed construction of the claim is also flawed. The proposed construction of

22 the term "predetermined" simply says "a prior time" without specifying prior to *what*. Freescale

23 argues that this construction, which would mean that "a prior time" may include any time prior to a

24 denial of a request for bus access, is not supported by any intrinsic evidence.

25   The Court finds that a construction which hews closely to the actual language of Claim 2 and

26 does not mimic the other words surrounding the term is most reasonable. "Predetermined" is not a

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28   [17] The Court also notes that the word "predetermined" is used in conjunction with "way" in
    Claim 1 and at the beginning of Claim 2, hence "a predetermined way." Thus the use of the word
    "predetermined" must be viewed in that context.

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term of art. Rather, "predetermined" literally refers to "pre-" (*i.e.*, before) the determination. The context here is the use of the bus. A construction which addresses both the "refusing to grant" language of Claim 2 without undermining the language in Claim 3 regarding "granting the use" (or the same language in Claims 1 and 7) is preferable.

THE COURT'S CONSTRUCTION:

Thus, based upon the foregoing, the Court finds that the term **"predetermined parameters"** means *"two or more variables each with a specific value set before a determination regarding use of the bus."*

CONCLUSION

For the reasons set forth above, the Court provides the following construction of the disputed claim terms/phrases:

DISPUTED CLAIM TERM/PHRASE	CONSTRUCTION
"configured and arranged to operate independently"	*"configured and arranged to operate without regard to the other arbitration unit"*
"independently accessed"	*"accessed without regard to the other slave subsystem"*
"interconnecting"	None; original language does not require construction.
"predetermined parameters"	*"two or more variables each with a specific value set before a determination regarding use of the bus."*

The Court **SETS** this matter for a further case management conference on **Monday, August 19, 2013, at 2:00 p.m.** The parties shall submit a Joint Case Management Statement updating the Court on the Status of the case no later than August 12, 2013.

IT IS SO ORDERED.

Date: July 16, 2013

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YVONNE GONZÁLEZ ROGERS
UNITED STATES DISTRICT COURT JUDGE

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